

Title (en)
Method and device for the measurement of the evenness of a surface

Title (de)
Verfahren und Vorrichtung zur Messung der Oberflächenebenheit

Title (fr)
Procédé et dispositif de mesure de la planéité d'une surface

Publication
EP 1217327 A2 20020626 (FR)

Application
EP 01403252 A 20011214

Priority
FR 0016659 A 20001220

Abstract (en)
[origin: FR2818370A1] In the fifth stage and for each mesh intersection point (Xi,Yi), a calculated surface fault (Zi) is subtracted. The flatness fault of the reference surface (11) is obtained by replacing the measured surface by a non fault flat surface and by previous execution of the first 5 stages. Displacement sensors (20a,20b) are used as differential transformers. An Independent Claim is included for the measuring device. Method for measuring faults in a flat surface, which includes the following stages: (a) 1. place a reference surface (11) with respect to the surface (21) to be measured and parallel to it; 2. displace a carriage (18) on which are mounted two head to toe displacement sensors (20a,20b) which indicate their to and fro displacement along an axis (X) and step by step along an axis (Y) perpendicular to the axis (X) in an intermediary plane (X0Y) between the surfaces. One of the sensors (20a) touches the reference surface and the other (20b) the measured surface perpendicular to the plane (X0Y); 3. the sensor measurements are taken at points of intersection (X,Y) of a mesh and the coordinates 9Xi,Yi) of the points of intersection; 4. the measurements at each mesh intersection point are converted into displacement values (z1,z2); for each mesh intersection point (Xi,Yi) is subtracted the displacement values (z-10,z20) from a point of origin respectively for the displacement values (z1,z2) so as to produce displacement differences (DELTA z1, DELTA z2) for each sensor with respect to the reference surface, and; 5. for each mesh intersection point (Xi,Yi) the differences are added so as to produce a measure of the flatness faults (Zi) of the measured surface at the intersection points (Xi,Yi) with respect to the reference surface, and; 6. a fault map is produced of the measured surface.

Abstract (fr)
L'invention concerne un procédé et un dispositif de mesure de la planéité d'une surface (21). La surface à mesurer (21) est disposée parallèlement à une surface de référence (11). Un chariot (18) mobile en X et Y dans un plan intermédiaire parallèle aux surfaces (11 et 21) comporte deux capteurs (20a, 20b) de distance à transformateurs différentiels qui palpent respectivement la surface de référence (11) et la surface à mesurer (21). On relève les déplacements des capteurs (20a, 20b) aux points d'intersection d'un maillage carré. On additionne ces déplacements pour chaque point du maillage, on soustrait les déplacements du point origine, et les défauts de la surface de référence (11) préalablement mesurés pour les mêmes points. On obtient ainsi les défauts réels de la surface à mesurer (21), aux points d'intersection du maillage, ce qui permet d'établir la cartographie de la surface à mesurer (21). <IMAGE>

IPC 1-7
G01B 5/20; G01B 5/28

IPC 8 full level
G01B 5/28 (2006.01)

CPC (source: EP)
G01B 5/285 (2013.01)

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Designated contracting state (EPC)
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

DOCDB simple family (publication)
EP 1217327 A2 20020626; EP 1217327 A3 20030122; FR 2818370 A1 20020621; FR 2818370 B1 20030328

DOCDB simple family (application)
EP 01403252 A 20011214; FR 0016659 A 20001220